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(71) Applicant (for all designated States except US): **IDEA LAB S.R.L.** [IT/IT]; Via Cavallotti, 13, I-20093 Cologno Monzese (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BERT, Paolo** [IT/IT]; Via Vittorio Emanuele II, 104, I-22100 Como (IT). **BIANCHINI, Claudio** [IT/IT]; Via Fossombroni, 10, I-50136 Firenze (IT).

(74) Agent: **GERVASI, Gemma**; Notarbartolo & Gervasi S.p.A., Corso di Porta Vittoria 9, I-20122 Milan (IT).

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(54) Title: PLATINUM-FREE ELECTROCATALYST MATERIALS

(57) Abstract: New metal-based catalyst materials, non-containing platinum, for preferred application to form both alcohol-tolerant cathodes for oxygen reduction and anodes for oxidation of various fuel molecules, and methods of making the said catalysts are provided. Methods for preparing anodes and cathodes for fuel cells are also provided.

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